

In the Claims:

1-153. (Canceled)

154. (Currently amended) A human glucocerebrosidase protein which consists of~~comprises~~ the amino acid sequence consisting of sequence set forth in SEQ ID NO: 8 linked at its C terminus to the vacuolar targeting signal peptide as set forth in SEQ ID NO: 2, and wherein said human glucocerebrosidase protein is glycosylated and comprises at least one exposed mannose, at least one fucose having an alpha (1-3) glycosidic bond and at least one xylose, and is linked at its C terminus to a vacuolar targeting signal peptide as set forth in SEQ ID NO: 2.

155-157. (Canceled)

158.(Currently amended) The human glucocerebrosidase protein of claim 154, having an increased affinity for, and uptake into macrophages, in comparison with the corresponding affinity and uptake of a recombinant human glucocerebrosidase protein produced in mammalian cells, and having glucocerebrosidase catalytic activity.

159.(Previously presented) The human glucocerebrosidase protein of claim 154, wherein said glucocerebrosidase protein is an isolated protein.

160.(Previously presented) A pharmaceutical composition comprising the human glucocerebrosidase protein of claim 154 and a pharmaceutically acceptable carrier.

161.(Previously presented) A plant cell expressing the human glucocerebrosidase protein of claim 154.

162.(Currently amended) A plant cell expressing the human glucocerebrosidase protein of claim 158 §.

163.(Previously presented) The plant cell of claim 161, wherein said plant cell is a carrot cell.

164.(Previously presented) The plant cell of claim 162, wherein said plant cell is a carrot cell.

165.(Previously presented) The plant cell of claim 161, wherein the main glycan structure of said glucocerebrosidase protein of said plant cell comprises at least one xylose residue and at least one exposed mannose residue, as measured by linkage analysis.

166.(Previously presented) A pharmaceutical composition comprising plant cells of claim 161 and a pharmaceutically acceptable carrier.

167.(Previously presented) The pharmaceutical composition of claim 166, wherein said plant cells are carrot cells.

168. (New) A human glucocerebrosidase protein which comprises the amino acid sequence set forth in SEQ ID NO: 8, wherein said human glucocerebrosidase protein is glycosylated and comprises at least one exposed mannose, at least one fucose having an alpha (1-3) glycosidic bond and at least one xylose, and is linked at its C terminus to a vacuolar targeting signal peptide as set forth in SEQ ID NO: 2, wherein said linkage is defined by the respective amino acid coordinates of SEQ ID NO: 14.

169. (New) A human glucocerebrosidase protein which consists of the amino acid sequence encoded by a polynucleotide consisting of:

(a) a first nucleic acid sequence encoding the glucocerebrosidase protein as set forth in SEQ ID NO: 8; and

(b) a second nucleic acid sequence encoding the vacuolar targeting signal peptide as set forth in SEQ ID NO: 2;

wherein the nucleic acid sequence of (b) is contiguous with and in the same reading frame as the nucleic acid sequence of (a), and wherein said amino acid

sequence consists of SEQ ID NO: 8 linked at its C terminus to the vacuolar targeting signal peptide as set forth in SEQ ID NO: 2, and wherein said human glucocerebrosidase protein is glycosylated and comprises at least one exposed mannose, at least one fucose having an alpha (1-3) glycosidic bond and at least one xylose.

170.(New) A pharmaceutical composition comprising the human glucocerebrosidase protein of claim 168 and a pharmaceutically acceptable carrier.

171.(New) A pharmaceutical composition comprising the human glucocerebrosidase protein of claim 169 and a pharmaceutically acceptable carrier.

172.(New) A plant cell expressing the human glucocerebrosidase protein of claim 168.

173.(New) A plant cell expressing the human glucocerebrosidase protein of claim 169.